

**WHAT IS CLAIMED IS:**

1. A wavelength division multiplexed optical communication system configured to simultaneously accept multiple data formats from voice and data sources on individual optical channels comprising:

an optical waveguide configured to carry a wavelength division multiplexed optical communication signal comprising a plurality of optical channels, each optical channel having a discrete wavelength;

an optical add-drop multiplexer optically communicating with the optical waveguide configured to selectively add one or more optical channels to the wavelength division multiplexed optical communication signal;

a first source of data in a first data format selected from ATM, IP, MPLS, Gigabit Ethernet, and Ethernet for imparting information to a first optical channel;

a second source of data comprising voice traffic for imparting information to the first optical channel;

an optical channel source for producing an optical channel at a first optical channel wavelength;

an optical network interface electrically communicating with the first and second sources and electrically communicating with the optical channel source for placing data from the first and second data sources onto the first optical channel such that voice and data traffic are multiplexed onto the optical channel;

an optical path optically communicating with the optical channel source and the optical add-drop multiplexer for transporting the first optical channel to the optical add-drop multiplexer.

2. A wavelength division multiplexed optical communication system as recited in claim 1 further comprising a cell format module positioned between the first source of data for imparting information onto the first optical channel in a cell format and between the optical network interface for formatting the information from the first data source to be output to the optical network interface.

3. A wavelength division multiplexed optical communication system as recited in claim 1 further comprising a TDM format module positioned between the second source of data for imparting information onto the first optical channel in a time division multiplexed format and between the optical network interface for formatting the information from the second data source to be output to the optical network interface.

4. A wavelength division multiplexed optical communication system as recited in claim 2 wherein the first data source has an asynchronous transfer mode (ATM) format.

5. A wavelength division multiplexed optical communication system as recited in claim 2 wherein the first data source has an Internet protocol (IP) format.

6. A wavelength division multiplexed optical communication system as recited in claim 2 wherein the first data source has a multiprotocol label switching (MPLS) format.

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7. A wavelength division multiplexed optical communication system as recited in claim 2 further comprising additional data sources electrically communicating with the cell format module.